The Demand for Advertising on Television: What Guides Firms' Decisions and How Their Choices Change During Highly Rated Telecasts

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1 Introduction

Television ads have become as much a part of watching TV as the programs themselves. They are such a ubiquitous component of network and cable television that they have developed their own sub-culture; popular commercials get brought up in conversation, and many commercial actors become famous for portraying their respective characters. For how prevalent television advertising is and always has been, though, it's amazing how little is known about advertiser demand. While many academics have conducted studies on the effects of advertising, little research has been steered towards understanding why advertisers choose to advertise when they do, especially within the context of advertising on TV. My research revolves around answering this question, as I attempt to establish patterns that can predict when firms will choose to advertise. By looking at data on past advertising trends, I try to find a sense of consistency across firms and across industries and then use that information to analyze any observed changes in behavior during highly rated telecasts. Before delving into what isn't known about television advertising, however, it is integral to discuss research that has already been carried out.

2 Literature Review

The first important aspect of the advertising market is that the industry is huge, making up roughly 2 percent of annual GNP (Schmalensee 1986). However, while the industry is indeed enormous, its structure is actually quite distinct from many other markets. Anderson and Gabszewicz (2005) point out that the unique nature of this market is partly due to the fact that media companies, which provide a platform for television programs and advertisements, are selling a public good, meaning that one person's consumption of

a television ad or show does not reduce the ability of others to watch it as well. They also consider media goods to be merit goods, which means that consumption is actually encouraged by the government. The idea is that media content, in addition to having educational power, has the ability to shape community values and is an important indicator of a developed, healthy society.

In addition to the unique qualities of the actual good, media companies also operate and gain profits in a distinct, two-sided market, providing content to consumers and funding that content by selling viewers' "eyeballs" to advertisers. The result is that media companies compete to gain revenue from ads, which may play a large role in deciding what content to air. In fact, many argue that media companies choose to air programs that match the tastes of particular demographics because advertisers are willing to pay more to access them. These programming choices need not result in programming that is optimal for society overall. Another important aspect of the market to discuss is that advertisements actually impose a negative externality on almost all TV viewers. Having to sit through commercials is an unwanted part of watching TV, so what advertisers are providing is something media consumers don't actually want to consume (Anderson and Gabszewicz 2005).

Aside from the rather distinct market structure, advertisings' many implications within the product market must also be examined. Advertising can affect many aspects of any industry, including firm entry, the nature of competition, or even the market structure itself (Bagwell 2007). As mentioned above, many have argued that networks choose programming that caters to advertisers' most valuable demographic groups in order to charge higher prices for commercial air time, which implies that advertising actually affects what programs a given network will choose to air (Anderson and Gabszewicz 2005). While the precise effects of advertising are a bit ambiguous, there are a few known reasons that a firm

may choose to advertise. The first, and perhaps most obvious, idea is that a company will choose to advertise to simply provide more and better information to consumers. These ads are geared towards informing consumers about the sheer existence of a product or towards providing more information about a good. Informative advertising, then, results in less concentrated markets and also strengthens price competition (Bagwell 2007). Sutton brings forth a second reason a firm may make the choice to advertise, which is to take advantage of persuasive effects. These effects are meant to impede market entry by raising the sunk costs of advertising. Think of a firm debating entry into the carbonated soft drink market. Coke and Pepsi, the two giants in this industry, may make the conscious decision to advertise a lot in order to deter a firm from wanting to enter. If firms in a market begin to advertise heavily or always have made sizable investments in advertising, then new firms will not want to enter simply because spending such large amounts on ads may not be feasible. This type of advertising leads to more concentrated markets, which will reduce price competition. It's important to mention that the persuasive effects theory relies heavily on the concept that advertising is a sunk cost that competitors must match in order to actively exist in a market. Finally, Sutton has also reasoned that firms may advertise as a complement to their products. These "prestige" effects attempt to offer an element of vertical differentiation into the market (Sutton 1991). They are not informative, but merely exist to promote a brand. Along the same lines of reasoning, some have argued that the simple fact that a firm chooses to advertise at all will increase consumer demand because spending money on advertising is an indicator of product quality (Ackerberg 2001).

While these broad categories likely fit most, if not all, television advertisements, it is hard to determine exactly why a firm is advertising on a case-by-case basis. Preliminary research indicates that the choice of where and when to advertise looks quite unclear, both on the inter- and intra-industry levels. Not only does each individual industry look different, but

the firms within each industry also appear to be following varying strategies (Mortimer, Grant Proposal). My research hopes to shed some light on these ambiguities.

3 Statement of the Topic

My thesis primarily revolves around advertiser demand, examining the choices of individual advertisers and trying to determine why they make the choice to advertise during a given telecast. To begin, I try to determine patterns both within and across industries, looking at firms' choices and trying to figure out the underlying mechanics guiding their decision to advertise. After gaining some initial insight, I conduct my research within the context of telecasts that typically have very high ratings, like the Super Bowl, World Series, or Grammy Awards. My hope is to compare the advertising decisions of firms within an industry both during highly rated telecasts and during "control" telecasts with average ratings (given their genre, network, and day part). The idea is that advertising during highly rated telecasts is much more expensive, and I'd like to examine if advertisers' choices are different given a sizable increase in the price of an ad. I will have the opportunity to look at whether willingness to pay per viewer goes up during telecasts with a large audience, and I also hope to make some statement on the worth of certain advertisements during highly rated, popular telecasts. For example, if a firm shows a distinct pattern of what guides its decision to advertise during control telecasts (i.e. it pays most attention to genre, the presence of rival firms, and/or day part), and then it breaks from that pattern and advertises during the Super Bowl even though its previous decisions indicate that wouldn't be a normal decision for the company (i.e. the firm has shown to rarely advertise in that day part, or it doesn't usually advertise in the presence of rivals), I would like to be able to say that such a firm paid too much for its advertisement. In other words, since it's so

costly to advertise during the Super Bowl, and the firm broke from its pattern in order to do so, it may have spent too much. Alternatively, it may be more prudent to conclude that there are unobservable mechanisms that drive a firm to advertise during the Super Bowl. The results will hopefully paint a clear picture.

Answering this question of worth is difficult, as it's hard to effectively see how valuable an advertisement was to a firm. There is also a strong chance that any deviation in firm behavior is caused by an unseen force. There may be an underlying mechanism in the market that drastically "changes the game" during highly rated telecasts that I cannot observe from the data. For example, many Super Bowl commercials are re-watched the next day, which likely raises firms' willingness to pay for Super Bowl ads. In fact, if there weren't such an explanation, the advertising market would be terribly inefficient. Whether or not I am able to make a definitive statement on the worth of an advertisement, though, I will at the very least be able to determine if firms deviate from their normal behavior in the context of a highly rated telecast.

I analyze three industries that advertise a reasonable amount: the Quick Serve Restaurant, Candy, and Wireless Telecommunications industries (with the Candy and Wireless Telecommunications analyses included in the appendix). In addition to analyzing each industry on its own, I plan to do inter-industry comparisons, looking at whether firms tend to break from their advertising patterns during a highly rated telecast in some industries more than others. Initial research seems to indicate that there is little consistency when looking at advertiser demand, so I hope to find some sliver of predictability in this market, even if it is in a very broad sense.

4 Methods

Thankfully, I have been provided the data I will need for my research from professor Julie Mortimer. Professor Mortimer obtained an extremely extensive dataset that covers every national advertisement run on every network for three years straight (2011-2013). The data contain all the relevant information about the ad (product, product category, parent company, ad run time, etc.), about when and where the ad ran (network, program, exact date and time, genre, national rating of the telecast, etc.), as well as a plethora of demographic information, covering 105 demographic cuts with 4 variables each: that demographics' rating, its index (which shows the likelihood that a certain demographic is to have seen a certain advertisement when compared to the entire population), its average audience, and its number of viewers on the household level. I also have information on the pricing of advertisements.

The data come from Rentrak and SQAD. Rentrak is a company that collects media data in the entertainment industry, and the data for this project are obtained from set-top boxes in over 13 million United States households. The set-top boxes collect second-by-second data, so it's possible to determine if a viewer changed the channel or turned off the TV during a given advertisement, which makes the ratings data exceptionally accurate.

The only data that come from SQAD (owned by Clarion Capital Partners) are the pricing data, which are averaged out across telecasts so as to provide anonymity to the advertisers. The one drawback of the SQAD data, however, is that they are missing if only one firm provided cost data for a given telecast. Again, this is for the sake of protecting anonymity.

All in all, there is an enormous amount of data. It is stored on BC's Linux cluster, spread out across distinct, un-merged datasets. A successfully merged copy of all telecasts,

demographics, and ads from the first 6 months of 2012 has over 9 million observations and over 450 variables. These figures don't even count the 7 million unmatched telecast observations (presumably from telecasts that don't run national advertisements or that didn't provide advertising data).

Once the merges have been completed, it is relatively easy to see and compare ads across genres, programs, or even individual telecasts. I begin my research by comparing across telecasts to get a grasp on rival effects. I have an individual dataset for the 2013 Super Bowl, which contains an observation for all of the advertisements run during the telecast. I can then compare intra-industry decisions across other, control telecasts. As an example, I have broken down the 2013 Super Bowl ads and found that there were six Quick Serve Restaurant advertisements. McDonalds had one commercial, as did Sonic and Taco Bell, and Subway paid for three commercials. Therefore, using this one telecast, you'd expect that the presence of rivals may not play a huge role in these quick serve restaurant companies' decision to advertise, or at the very least, that the presence of competitors actually encourages these companies to advertise.

In order to check this assumption, I broke down the data to the regular season NBA games aired between January and June 2013, hoping to compare the rival effects during these telecasts to those during the Super Bowl. I chose regular season NBA games because I made the assumption that the NBA caters to a similar demographic as the NFL, so I was trying to mimic a situation wherein similar firms would want to advertise. While the demographic targets may actually be slightly different, I believe they are similar enough to effectively demonstrate the methods utilized in my research, and relying on NBA games gave me access to more telecasts overall as there are more games in a season. I created dummy variables representing each quick serve restaurant's decision to advertise during a given telecast and ran a simple linear probability model. Regressing the indicator variable

for whether or not Taco Bell advertised during a given NBA game against the same variable for McDonalds, Sonic, and Subway led to the following results:

Table 1: Taco Bell Regression

Variable	Coefficient	
McDonald's	-.035	
	(.056)	
Sonic	.171	
	(.061)	
Subway	.179	
	(.059)	
Constant	.679	
	(.062)	
Number of Observations	R-Squared	Adjusted R-Squared
171	.081	.065

The 171 observations indicate that there were 171 NBA games in which at least one Quick Serve Restaurant advertised in 2013, and as my data only covers national advertisements, this regression contains a limited number of telecasts. However, it does give insight into the types of patterns I look for in my research. Overall, it seems that the presence of competitors' advertisements during a given NBA game does not play too large of a role in Taco Bell's decision to advertise, as the adjusted R-squared is only .065. The individual effects have different signs, but the statistically significant variables have positive coefficients, which is consistent with the qualitative findings from the 2013 Super Bowl. It seems, looking at the simple example, that Taco Bell does not deviate from its normal advertising patterns during high ratings telecasts, at least in terms of the presence of rivals.

I then ran a similar regression, but changed the independent variable to the Subway dummy. The output was a bit more interesting:

Table 2: Subway Regression

Variable	Coefficient	
McDonald's	-.105	
	(.071)	
Sonic	-.288	
	(.075)	
Taco Bell	.288	
	(.096)	
Constant	.521	
	(.095)	
Number of Observations	R-Squared	Adjusted R-Squared
171	.123	.107

Subway places a larger weight on the presence of rivals when it chooses to advertise, as is evidenced by the higher adjusted R-squared of .107, which is interesting considering Subway advertises in 14.7% of NBA telecasts overall, compared to Taco Bell's 25.5% (Sonic and McDonald's advertise in 5.1% and 9.8%, respectively). There is also an apparent deviation from what would be expected looking at the 2013 Super Bowl because the presence of rivals (aside from Taco Bell) during NBA games seems to have a negative effect on Subway's decision to advertise. These results highlight the inconsistency within the market; even though Taco Bell and Subway operate within the same industry, they appear to place different weights on different factors when it comes to making the choice to advertise during a given telecast. It is integral to note, however, that Subway may take different factors into account when deciding to advertise during the Super Bowl. Aside from any

sponsorship contracts that may have been signed, Subway's spokesperson, Jared Fogle, was very popular at the time and had become an almost commonplace feature of the Super Bowl telecasts. It's also possible that Subway knows Super Bowl advertisements are popular and may be replayed after the fact, so they may place more value on that particular telecast.

The previous example is obviously very simplified, as it only takes into account one factor that may affect a firm's decision to advertise, and it also only looked at one highly rated telecast. However, it does provide good insight into the type of results I look to generate. I begin my research by looking into summary statistics for my chosen industries, determining firms' top genres and day parts, as well as analyzing how the presence of rivals affect the decision to advertise. I also look at ratings and how the popularity of a telecast may play a role for a firm's demand for advertising space. I then generate summary tables that show the specific values of those important variables for each firm, hoping to identify a pattern within an industry. Finally, I research if and how any pre-established patterns are broken within the context of highly rated telecasts.

5 Results

5.1 A Note on the Structure of my Results

Due to the nature of my research, I have set up the results section in a rather unique way. In order to determine patterns in the three industries I have studied, I run parallel analyses of each, which can get quite repetitive. Therefore, in order to make this section easier to read, I have included my analyses of the Candy and Wireless Telecommunications industries in the appendix. While the best way to understand my research would be to

read the appendix in full along with my results, I briefly cover the findings from the other two industries in the body of the text. So, while the numbering of the tables would direct the reader to the appendix in each of the following subsections, a chronological reading of my paper does prove a quicker and easier way to review the findings of my research.

5.2 Rival Effects

Going off of the quick serve restaurants example used earlier, I decided to utilize a more nuanced approach. Since running a regression implies an element of causality, the previous NBA example could easily be refuted by saying firms were simply targeting different demographics. Additionally, I'm sure my previous models exhibited rampant omitted variable bias. Therefore, I decided to make tables that record how often firms advertise during telecasts that contain their competitors' ads as well. Using this crossover data, I hoped to draw some conclusions regarding rival effect across multiple markets. The following is a table representing ad overlaps from the Quick Serve Restaurant industry across all NBA regular and post season games played between January and June in 2011, 2012, and 2013. The crossover is done on a firm by firm basis, so the overlap percentages in the Burger King row, for example, illustrate how frequently each competitor advertised within a telecast during which Burger King also ran an ad. The second column, Ad %, shows the percentage of telecasts in which the firm advertised. In this example, the number in that column show the percentage of NBA games during which each restaurant ran an ad. The restaurants are included are the top 9 advertisers in the industry, and their ads make up over 90% of fast food commercials on television.

Table 3: Quick Serve Restaurant Crossover Data (NBA)

Restaurants	Ad %	BK	DQ	KFC	LJS	McD	Son	Sub	TB	Wendy's
Burger King	45.5%	100%	9.8%	43.8%	0.8%	37.1%	36.3%	53.1%	81.6%	19.5%
Dairy Queen	6.7%	65.8%	100%	36.8%	5.3%	18.4%	36.8%	42.1%	73.7%	23.7%
KFC	52.0%	38.2%	4.8%	100%	0.3%	32.4%	33.8%	51.5%	85.0%	21.1%
Long John Silver's	2.5%	14.3%	14.3%	7.1%	100%	85.7%	0%	14.3%	21.4%	42.9%
McDonald's	37.3%	45.2%	3.3%	45.2%	5.7%	100%	28.1%	51.9%	78.6%	25.7%
Sonic	30.7%	53.8%	8.1%	57.2%	0%	34.1%	100%	45.7%	90.8%	16.8%
Subway	51.3%	47.1%	5.5%	52.2%	0.7%	37.7%	27.3%	100%	88.9%	28.4%
Taco Bell	81.0%	45.8%	6.1%	54.6%	0.7%	36.2%	34.4%	56.4%	100%	22.6%
Wendy's	22.6%	39.4%	7.1%	48.8%	4.7%	42.5%	22.8%	64.6%	81.1%	100%

Absent of any rival effects, you would expect a firm's Ad % to be the number around which its crossover rates revolve. For example, since Burger King advertises in 45.5% of NBA games overall, the expectation is that it should cross over with competitors roughly 45.5% of the time. Any deviation from this percentage would indicate that firms are either averse to or have a penchant towards advertising alongside this competitor. For example, in the Dairy Queen row, its crossover with Burger King is 65.8%, which indicates that Dairy Queen and Burger King advertise together more than would be expected, signaling positive rival effects.

Quite a few trends reveal themselves from this table. First and foremost, there is a very high variance in how frequently each restaurant advertises during NBA games, which implies that they aren't all trying to attract the same demographics. There are, of course, sponsorship deals that could be affecting this data as well. Taco Bell, for example, advertises so much during NBA games that it's hard to believe that it isn't a sponsor in some way. In fact, it turns out that Taco Bell is the "official quick serve restaurant partner of the National Basketball Association" (Brandau). Such a deal affects Taco Bell's numbers

across the board just because it's more likely to advertise in any given telecast.

Dairy Queen and Long John Silver's advertise the least by far, so it is interesting to see their relatively low overlap percentages across the board. Instead of mimicking the behavior of multiple firms, both restaurants appear to be copying the advertising decisions of one other company in particular. Long John Silver's, for example, crosses over a lot with McDonald's given its relatively low Ad % of 37.3%, and Dairy Queen appears to have a liking for Burger King's advertising decisions, as their overlap is 20.3% higher than Burger King's overall advertising rate.

It is apparent that firms within the industry appear to react differently to the presence of competitors. The closest three competitors by product offering, McDonald's, Burger King, and Wendy's, react slightly differently to each other's presences, which is surprisingly given the similarity of the restaurants. Burger King and McDonald's do not seem to react much at all to the presence of the other, as their overlap rates do not vary more than 0.3% from their overall Ad %. Wendy's, however, tends to slightly avoid overlapping with Burger King, while it seems to have a liking towards advertising alongside McDonald's within a telecast. Given that all three firms are so similar, such results are intriguing.

In order to confirm these trends and to help eliminate mechanical effects from the relatively small size of the dataset, I ran an identical analysis using all telecasts in every genre for the same span of years (but again only using the first six months). Since I had only looked into NBA games thus far, it seemed rational to continue my research by expanding the market I was looking at.

Table 4: Quick Serve Restaurant Crossover Data (All genres)

Restaurants	Ad %	BK	DQ	KFC	LJS	McD	Son	Sub	TB	Wendy's
Burger King	23.4%	100%	5.4%	10.4%	5.0%	15.9%	11.1%	24.0%	13.3%	12.2%
Dairy Queen	9.3%	13.6%	100%	8.1%	11.8%	10.8%	9.6%	16.3%	9.2%	11.5%
KFC	12.2%	20.0%	6.1%	100%	7.2%	13.8%	10.5%	24.7%	14.6%	11.1%
Long John Silver's	10.2%	11.5%	10.7%	8.6%	100%	9.5%	10.2%	15.2%	9.9%	10.3%
McDonald's	23.2%	16.0%	4.3%	7.2%	4.2%	100%	7.2%	17.9%	10.6%	13.5%
Sonic	11.3%	23.0%	7.9%	11.3%	9.2%	14.7%	100%	25.6%	17.5%	14.0%
Subway	24.3%	23.1%	6.2%	12.4%	6.4%	17.1%	11.9%	100%	16.6%	15.6%
Taco Bell	14.3%	21.8%	6.0%	12.5%	7.1%	17.2%	13.8%	28.2%	100%	18.7%
Wendy's	16.8%	17.0%	6.4%	8.1%	6.3%	18.6%	9.5%	22.6%	16.0%	100%

Table 4 reveals that firms in the Quick Serve Restaurant industry, as a whole, tend to avoid each other. Almost every firm in the industry advertises less than its Ad % in a telecast in which another restaurant is airing an ad. While this is simple crossover data, they indicate that it's far more common to see a telecast during which only one restaurant airs an ad than the alternative, as no crossover rate is even close to 50%. While rival aversion certainly is the overall trend, there are a few exceptions. Subway is perhaps the most obvious, overlapping more than would be expected with KFC, Sonic, and Taco Bell given its overall advertising rate. Such findings could simply be the result of Subway advertising the most, which leads to a higher chance of overlap, but they could also indicate that some firms are intentionally mimicking Subway's marketing strategy.

It's tough to know how much of what's driving the crossover percentages are mechanical versus actual advertising strategy. The reason the crossover numbers are so low could be explained by the fact that there's only so much advertising space available, and media companies may want to diversify their commercial content for a given telecast. Regardless of the underlying causes, though, Table 4 illustrates that crossovers in the Quick Serve

Restaurant industry are not common for a given telecast, which constitutes an established pattern for which to compare my results from the highly rated telecasts.

Now that the dataset has been expanded to include much more data, the results regarding the three closest substitutes make more sense. McDonald's, Burger King, and Wendy's now all seem to have a slight aversion to advertising alongside each other. While it cannot be determined from Table 4 what drives such aversion, it's good to see such similar restaurants practicing similar advertising strategies.

Another surprising result is that KFC and Taco Bell do not appear to advertise very much during the same telecast. Both companies overlap 0.3% more than they're overall Ad %, which indicates an extremely small, perhaps even negligible, tendency to advertise during the same telecast. I had expected them to advertise together more frequently as both restaurants are owned by Yum! brands, but that does not appear to be the case. Contrary to expectations, there is not much evidence that companies owned by the same firm utilize similar advertising strategies.

While no clear sense of consistency has been made beyond a general, but not entirely consistent trend toward rival aversion, the crossover analysis has allowed me to develop some loose trends I can use for comparison later on in my results.

For analyses of rival effects in the Candy and Wireless Telecommunications industries, please refer to the appendix.

After analyzing Tables 4, 5, and 6, it seems clear that there is an overall trend of rival aversion in all three industries. While some Quick Serve Restaurants do display signs of occasionally wanting to advertise alongside each other, most avoid each other. As an intuitive extension, the crossover data also reveal that it's more likely to see a telecast in which only one firm in an industry runs an ad as opposed to seeing any overlap. Therefore,

looking forward to my analyses of genre and day part, I expect to find some variation in firms' choices. Since they tend to avoid each other on the telecast level, I would assume there is at least some variation in terms of the genres and day parts in which they choose to run ads as well.

5.3 Genre

I moved on to analyze genre, comparing each firm's choices with the industry averages. Using a dataset covering the first six months of 2011, 2012, and 2013, I generated the following table for the Quick Serve Restaurant industry. The dataset covers almost 700,000 telecasts, and the parenthetical references show the percentage of telecasts within each genre in which the firm ran an ad.

Table 7: Top Genres in the Quick Serve Restaurant Industry

TOP GENRES	Burger King	Dairy Queen	KFC
Genre 1	Reality (20.5%)	Comedy (19.3%)	Sports (27.6%)
Genre 2	Sports (17.5%)	Movies (17.9%)	Reality (16.0%)
Genre 3	Movies (12.2%)	Reality (17.4%)	Movies (15.9%)
Total Telecasts	113,607	40,991	57,827
TOP GENRES	Long John Silver's	McDonald's	Sonic
Genre 1	Movies (23.6%)	Reality (14.8%)	Reality (24.2%)
Genre 2	Reality (19.3%)	Movies (13.2%)	Movies (17.6%)
Genre 3	Comedy (16.6%)	Comedy (13.0%)	Comedy (13.5%)
Total Telecasts	49,820	101,875	49,295
TOP GENRES	Subway	Taco Bell	Wendy's
Genre 1	Reality (20.7%)	Reality (23.9%)	Reality (21.5%)
Genre 2	Sports (18.0%)	Sports (21.0%)	Movies (19.1%)
Genre 3	Movies (16.3%)	Movies (16.4%)	Comedy (14.4%)
Total Telecasts	122,140	73,845	83,621

Overall Quick Serve Top Genres
Reality (19.8%)
Movies (16.2%)
Sports (14.4%)
Comedy (12.8%)
Music (8.3%)
Total: 693,021

Table 7 reveals that there is not a lot of variation in top genres for the Quick Serve Restaurants that engage in the most advertising. And not only that, but each restaurant's top three genres are in the top four genres for the entire industry. In fact, the only

real difference among the firms is their dispersion of ads across their top three genres. Dairy Queen and McDonald's, for example, spread their ads across their top three genres pretty equally, whereas the rest of the firms see a bit more variation. However, outside of McDonald's and Dairy Queen, even the dispersion of ads is quite similar across the top 9 restaurants, not varying much more than 4-5% between each top genre.

Such similarity between these firms' top genres is surprising given the general trend towards rival aversion in the industry. If firms don't advertise often during the same telecast, then I would have expected to see more variation in their top genres. In order to see if this finding would hold, I decided to run the same analysis comparing ratings-weighted ad seconds as opposed to the sheer number of telecasts in which a firm placed an ad. Under these conditions, I'm able to determine top genres by the amount of time firms spend advertising in each genre, giving a higher weight to seconds of an advertisement run during a more highly rated telecast. Therefore, the following table should more accurately reflect in which genres each firm spends the most money. Since advertisements during more highly rated telecasts are more expensive, the following table is able to better represent the flow of marketing cash from each firm to media companies.

Table 8: Ratings-Weighted Top Genres in the Quick Serve Restaurant Industry

TOP GENRES	Burger King	Dairy Queen	KFC
Genre 1	Reality (18.0%)	Movies (19.7%)	Sports (27.4%)
Genre 2	Sports (16.1%)	Comedy (17.9%)	Reality (16.4%)
Genre 3	Movies (10.7%)	Reality (14.1%)	Drama (15.3%)
Total Weighted Ad Seconds	6,589.0823	2,583.1259	5,384.9961
TOP GENRES	Long John Silver's	McDonald's	Sonic
Genre 1	Movies (30.6%)	Sports (14.2%)	Reality (20.9%)
Genre 2	Comedy (20.2%)	Drama (14.1%)	Sports (20.5%)
Genre 3	Reality (16.8%)	Reality (13.9%)	Movies (18.2%)
Total Weighted Ad Seconds	1,881.0239	12,567.061	3,241.7654
TOP GENRES	Subway	Taco Bell	Wendy's
Genre 1	Sports (25.5%)	Sports (35.1%)	Reality (21.1%)
Genre 2	Reality (17.4%)	Reality (18.0%)	Movies (19.2%)
Genre 3	Drama (12.7%)	Movies (13.4%)	Comedy (15.2%)
Total Weighted Ad Seconds	9,728.9093	6,195.1007	5,220.8785

Overall Quick Serve Ratings-Weighted Top Genres
Sports (19.1%)
Reality (17.3%)
Movies (14.1%)
Drama (11.7%)
Comedy (11.6%)
Total: 58,825.088

As expected, Table 8 shows quite a bit more variation than Table 7. The industry's fifth top genre appears in Table 8 three times, while no firm advertised outside of the industry's top four genres in Table 7. Additionally, before accounting for ratings, the industry top

genre was also the top genre for six individual firms. After accounting for ratings, the new top genre was the top genre for four individual firms. While the differences are slight, the amount of variation is significant given the limited amount of genres on television.

How firms disperse their ads across their top genres is still generally unpredictable and does not seem to follow any general trend. McDonald's still seems to smooth its ad placement choice quite evenly across its top genres, but the same is not still true of Dairy Queen. The other noteworthy aspect of Table 8 is that the top firms in terms of overall ad placement change when using ratings-weighted ad seconds. McDonald's is now the top firm by far, followed by Subway, Burger King, and Taco Bell. Wendy's has fallen from fourth to fifth overall, and Long John Silver's is now the smallest firm in the industry. Since ratings-weighted advertising seconds are representative of a firm's advertising expenditure, they're useful for identifying which firms are more likely to advertise during highly rated telecasts.

Please refer to the appendix for an analysis of the Candy and Wireless Telecommunications industries.

The differences between the general genre analyses and the ratings-weighted genre analyses are surprising because the results from each industry were different. When accounting for ratings, the Quick Serve Restaurant industry, as expected, displayed more variation, while the Candy industry showed less variation, and the Wireless industry didn't appear to show more or less overall variation. While it's discouraging to find such differences across the industries, the top genre results do lend themselves to comparison for the highly rated telecasts.

5.4 Day Part

Day Part was the next telecast characteristic I studied, breaking each of the seven days of the week into the same nine segments of time. Similar to the analysis of genres, I hope to pick up on patterns in the market. Again, for all industries, I used a dataset that covers the first 6 months of 2011, 2012, and 2013, encompassing all genres and networks. The first industry I looked at was Quick Serve Restaurants. The numbers in parentheses again refer to the percentage of telecasts in which an ad for the given restaurant was run.

Table 13: Top Day Parts in the Quick Serve Restaurant Industry

TOP DAY PARTS	Burger King	Dairy Queen	KFC
Day Part 1	Prime (19.2%)	Daytime (23.6%)	Daytime (23.3%)
Day Part 2	Daytime (18.6%)	Late Fringe (13.1%)	Prime (18.0%)
Day Part 3	Late Fringe (13.0%)	Early Fringe (12.7%)	Early Fringe (11.4%)
Total Telecasts	113,631	40,994	57,880
TOP DAY PARTS	Long John Silver's	McDonald's	Sonic
Day Part 1	Daytime (26.0%)	Daytime (21.7%)	Prime (19.2%)
Day Part 2	Prime (18.1%)	Prime (17.8%)	Daytime (16.8%)
Day Part 3	Early Morning (11.7%)	Early Morning (15.7%)	Late Fringe (13.2%)
Total Telecasts	49,820	101,909	49,296
TOP DAY PARTS	Subway	Taco Bell	Wendy's
Day Part 1	Daytime (19.8%)	Prime (22.0%)	Daytime (22.6%)
Day Part 2	Prime (19.1%)	Daytime (15.2%)	Prime (18.5%)
Day Part 3	Late Fringe (13.4%)	Late Fringe (14.1%)	Late Fringe (13.9%)
Total Telecasts	123,482	73,931	83,633

Overall Quick Serve Top Day Parts
Daytime (19.9%)
Prime (18.8%)
Late Fringe (12.4%)
Early Morning (11.0%)
Early News (10.8%)
Early Fringe (10.3%)
Total: 756,372

There is a slight variation between the total telecasts in this table and Table 7 because not every observation has a value for each variable. If a variable was not filled for the airtime of the telecast, then I had to drop it from the dataset for the making of this table. The same is true if a genre was missing for Table 7. It is also important to note that the day parts are not all the same length. Some, such as Late News, are only 30 minutes, while others are up to 6 hours. However, since this distinction affects all firms equally, the inconsistency should smooth out.

While Table 13 does not show too much variation in terms of top day parts (all but one restaurant has Daytime and Prime as their top two), there is a lot of inconsistency in the distribution across a firm's top day parts. The difference between the amount of advertisements placed in each day part changes somewhat from firm to firm. For example, McDonald's' top day part makes up 21.7% of its total advertising placement, whereas its second makes up 17.8% and its third consumes 15.7%. Compare that to Long John Silver's, which has the same top day parts as McDonald's in the same order, but its top day part makes up 26.0% of its ad placement, while it's second and third top day parts take up 18.1% and 11.7%, respectively. Considering there are nine day parts, these variations are pretty big despite their relative magnitude. Perhaps this is more evidence of the smaller

firms varying slightly in their behavior from the larger firms in the industry.

Also noticeable is Dairy Queen's top three, which vary the most in terms of the actual day parts. Dairy Queen is one of the two restaurants to incorporate Early Fringe into its top three, and it is also alone in that its top three does not contain Prime. Sonic caters to a similar demographic, yet utilizes its ad space differently, and places 19.2% of its advertisements in Prime, 16.8% in Daytime, and 13.2% in Late Fringe. Compare that to Dairy Queen's 23.6% in Daytime, 13.1% in Late Fringe, and 12.7% in Early Fringe. Dairy Queen and Sonic are both in the bottom three in terms of advertisements placed, so this is even more evidence of the smallest firms showing the most variation in behavior.

Following the analyses of genre, I decided to run the same analysis using ratings-weighted advertising seconds. This way, I could analyze where firms are spending the most money on their ads and are thus reaching the most viewers. Since there is evidence of rival aversion and quite a bit of variation in top genres, I expected the following table to show a greater dispersion of top day parts.

Table 14: Top Ratings-Weighted Day Parts in the Quick Serve Restaurant Industry

TOP DAY PARTS	Burger King	Dairy Queen	KFC
Day Part 1	Prime (30.7%)	Prime (19.0%)	Prime (36.6%)
Day Part 2	Late Fringe (17.4%)	Daytime (17.6%)	Daytime (16.5%)
Day Part 3	Daytime (12.5%)	Late Fringe (16.3%)	Early Fringe (9.6%)
Total Weighted Ad Seconds	6,589.115	2,583.1259	5,385.0409
TOP DAY PARTS	Long John Silver's	McDonald's	Sonic
Day Part 1	Prime (25.7%)	Prime (39.5%)	Prime (30.0%)
Day Part 2	Daytime (22.6%)	Daytime (14.9%)	Daytime (16.5%)
Day Part 3	Early News (12.2%)	Early Morning (11.3%)	Late Fringe (12.5%)
Total Weighted Ad Seconds	1,881.0239	12,567.061	3,241.7654
TOP DAY PARTS	Subway	Taco Bell	Wendy's
Day Part 1	Prime (33.7%)	Prime (39.2%)	Prime (37.2%)
Day Part 2	Daytime (13.5%)	Daytime (12.0%)	Daytime (16.1%)
Day Part 3	Late Fringe (11.8%)	Late Fringe (9.9%)	Early News (11.4%)
Total Weighted Ad Seconds	9,728.9309	6,195.1007	5,220.8785

Overall Quick Serve Top Ratings-Weighted Day Parts
Prime (34.7%)
Daytime (14.4%)
Late Fringe (11.0%)
Early News (9.5%)
Early Fringe (9.0%)
Early Morning (7.9%)
Total: 58,825.187

Yet again, prime and daytime are the top two day parts for every firm except one. In Table 14, however, prime is the top day part for each firm. Intuitively, such a result make

sense as the title "prime" refers to the fact that highly rated shows congregate around those hours. The same is likely true of the daytime variable, as it is the longest day part by far. However, a key difference between Tables 13 and 14 are that more day parts are represented overall once ratings are factored into the equation. Table 13 incorporates five day parts, while Table 14 incorporates six. While the difference may seem small, again, the fact that there are only nine firms and nine day parts makes the relative magnitude of this difference quite large. Overall, including ratings in the analysis creates a situation where firms vary much more in their third top day part, utilizing five different genres in the third spot compared to only three in Table 13. The dispersion across top genres has changed as well, but again, it is almost certainly due to prime time being when most of the highly rated telecasts are aired. The range in the third top genre has increased slightly, from 4.3% to 6.7%, reinforcing the slightly increased variation across top day parts.

Please refer to the appendix for parallel analyses within the Candy and Wireless Telecommunications industries.

After analyzing rival effects, top genres, and top day parts in each of the three industries, a few trends have materialized. First, as a general rule, firms within an industry tend to avoid advertising in the same telecast. This result is obvious in the rival effects analysis, but also comes to fruition in the genre and day part analyses as firms seem to vary to some degree in terms of where they place their ads. Second, firms that advertise less tend to stray more from industry averages. Such a result makes sense because there is a finite amount of advertising space, but the ratings-weighted analysis reveals that price plays a role as well. Since finances are likely more of a constraint to the smaller firms, they may simply not have as many options when it comes to placing an ad, which would intuitively lead to more dispersion. Alternatively, more variation among the firms that spend less on advertising could reflect that they're attempting to distinguish themselves in the market.

Consumer Cellular Wireless, for example, may prefer to advertise overnight because most other firms in the industry do not, so it may be hoping to find a niche market in which to succeed. Regardless of the reason why small firms make different decisions, though, is likely not something that can be gleaned from my data. The advertising market is riddled with non-economic and contractual factors that play a role in firms' decision-making, and it's becoming clear that we cannot consider firms that engage in television advertising to be completely rational in an economic sense. In other words, from the data, it is sometimes entirely unclear why companies make the decisions they do, and we have to assume its for underlying factors that affect how a company makes its marketing choices.

After conducting these analyses, however, there are some general trends emerging in the market. Therefore, to confirm my hypotheses, I continue my research by looking at how ratings affect advertising decisions in each industry.

5.5 Ratings Effects

The last summary statistic I looked at was ratings, which show what percentage of households are watching a given telecast. I wanted to look at how firms' advertising behavior changes as the ratings of the programs during which they advertise change. Therefore, I broke up each industry into four equal quadrants, each representing a continuous quartile of the cumulative ratings distribution. Therefore, the first ratings group represents the bottom 25% of ratings, and the fourth ratings group represents the top 25% of ratings. Again, for each industry, I analyzed the first six months of 2011, 2012, and 2013. Each table shows how each firm distributes its ads across ratings quartiles.

Table 19: Ratings Effects in the Quick Serve Restaurant Industry

Restaurants	Total Ads	Bottom Quartile	2nd Quartile	3rd Quartile	Top Quartile
Burger King	113,444	31.9%	26.2%	22.7%	19.2%
Dairy Queen	40,991	19.6%	31.6%	29.9%	18.9%
KFC	57,860	28.8%	19.3%	24.7%	27.2%
Long John Silver's	49,820	14.5%	33.4%	33.7%	18.4%
McDonald's	101,821	23.6%	24.7%	22.6%	29.1%
Sonic	49,257	25.8%	25.4%	27.4%	21.4%
Subway	123,293	30.8%	21.3%	21.7%	26.2%
Taco Bell	73,899	18.7%	22.0%	29.2%	30.1%
Wendy's	83,620	28.9%	27.9%	24.6%	18.6%

Immediately palpable are the vast differences between firms. It is almost as if no two companies are following a similar strategy. Since the restaurants don't appear to follow a general trend, Table 19 may serve as evidence that the price per viewer doesn't change much across ratings groups. Put simply, even though ads cost more when the telecast ratings are higher, firms likely aren't actually achieving a lower price per viewer by purchasing the more expensive ad. Otherwise, we would expect the firms that advertise a great deal to stray more towards certain quartiles where they get more viewership per dollar spent.

All companies here appear to be making their own choices, and there are hardly two firms that seem to be following similar strategies. However, there are some minor consistent elements worthy of mention. Dairy Queen and Long John Silver's, which have made relatively similar decisions thus far as the smallest firms in the industry, continue to make somewhat parallel choices. They both advertise little in the bottom and top quartiles and focus most of their ads in the middle two. Other restaurants that advertise a similar amount, however, do not follow the same path. Sonic, for example, utilizes a more smooth approach that places its ads almost evenly across quartiles. Wendy's and Burger King

both decrease their ad placement as ratings increase, but McDonald's, the next closest substitute, generally increases its advertisements as ratings increase. Subway and KFC follow somewhat similar approaches, but again, there is not enough consistency to identify a general trend. Inconsistency, however, may be a good sign, as it's more evidence that firms tend to avoid each other in the Quick Serve Restaurant Industry.

Please refer to the appendix for analyses of the Candy and Wireless Telecommunications industries.

As mentioned before, we would expect most firms, especially the largest ones with high marketing expenditures, to congregate around the quartile with the cheapest price per viewer. However, since we do not observe such an effect, it can be determined that price per viewer remains relatively constant across all ratings. This result has major implications for the next section, in which I analyze how firms react within the context of highly rated telecasts. If price per viewer remains constant even during these telecasts, then I wouldn't expect much deviation from previously defined patterns, as firms would not have much reason to abandon their marketing strategies if the unit price is exactly the same.

5.6 Highly Rated Telecasts

Finally, this is where I analyze firm behavior within the context of highly rated telecasts. For all three industries, I confined the data to include only the top 2% of programs according to their household rating. As always, the data come from the first six months of 2011, 2012, and 2013.

5.6.1 Quick Serve Restaurants

While many previously observed variations have been mechanical (for example, the prime and daytime day parts are more privy to high ratings as they're times when people are generally watching TV), my research revolves around analyzing differences in firm behavior. Therefore, any differences at all play an integral role in my findings regardless of whether they're mechanical or not. Put simply, while top genres and day parts may be easily anticipated, my goal is to analyze if firms have deviated from their established patterns, which is still entirely possible despite the predictable nature of the high ratings telecasts. I begin by looking at genres.

Table 22: Top, High Ratings Genres in the Quick Serve Restaurant Industry

TOP GENRES	Burger King	Dairy Queen	KFC
Genre 1	News (25.2%)	News (61.4%)	Sports (32.2%)
Genre 2	Sports (18.6%)	Drama (15.9%)	News (21.5%)
Genre 3	Drama & Reality (Tie, 17.6%)	Reality (10.5%)	Drama (20.9%)
Total Telecasts	1,027	220	936
TOP GENRES	McDonald's	Sonic	Subway
Genre 1	Drama (24.8%)	Sports (97.6%)	Sports (27.6%)
Genre 2	News (24.1%)	Movies (1.2%)	Reality (22.3%)
Genre 3	Reality (22.3%)	Reality (1.2%)	Drama (20.5%)
Total Telecasts	2,395	82	1,565
TOP GENRES	Taco Bell	Wendy's	
Genre 1	Sports (72.4%)	Reality (39.3%)	
Genre 2	Reality (16.8%)	Drama (26.4%)	
Genre 3	Drama (5.1%)	Comedy (14.0%)	
Total Telecasts	572	522	

Overall Quick Serve Top, High Ratings Genres
Sports (25.3%)
Reality (21.6%)
Drama (20.0%)
News (19.0%)
Comedy (8.6%)
Total: 7,616

Long John Silver's is excluded from this analysis because it has no ads in the top 2% of ratings. The most obvious difference between these results and the results from Table 7 is that there is a much higher variance between restaurants. Unlike in Table 7, where the

industry's top two genres were in all 9 restaurant's top three, firms seem to stray a bit more from the general trends in the context of highly rated telecasts. The biggest firms in the industry also vary a lot more in this dataset. Only one of the top three advertisers has the overall top genre, Sports, as its most used genre, while another has News, the fourth top genre overall, as its number one. Table 22, therefore, is much more reflective of the ratings-weighted Table 8. When ratings are taken into account, it seems that firms are much more privy to avoiding each other.

Table 22 also reveals that firms that engage in less high ratings advertising will stick to a particular genre. Sonic is the most stark example, placing 97.6% of its advertisements in its top genre, but Dairy Queen and Taco Bell show elements of the same behavior. Earlier, I suggested that smaller firms may engage in less high ratings advertising due to financial constraints, and Table 22 adds weight to that theory. Since smaller firms are not varying much outside of their top genre, there is evidence that they may be concentrating their limited money on sponsorship deals with a specific telecast or network. As mentioned earlier, Taco Bell has a contract with the NBA, and outside of that, it does not engage in much highly rated advertising.

These preliminary results indicate that, at least in the Quick Serve Restaurant industry, firms tend to vary more in their advertising decisions within the context of highly rated telecasts. It's becoming more obvious that during these top, more expensive programs, firms tend to avoid each other to an even larger extent than Tables 7 and 8 may indicate. To check this assumption, I ran another rival effects analysis. Ad %, yet again, refers to the percentage of telecasts in the dataset during which the associated firm ran at least one advertisement.

Table 23: Quick Serve Restaurant High Ratings Crossover Data

Restaurants	Ad %	BK	DQ	KFC	McD	Son	Sub	TB	Wendy's
Burger King	25.3%	100%	5.8%	21.1%	41.0%	2.0%	30.7%	10.2%	9.6%
Dairy Queen	6.5%	22.5%	100%	24.5%	37.7%	0%	23.0%	4.9%	4.4%
KFC	23.5%	22.7%	6.8%	100%	47.8%	3.7%	33.4%	15.6%	11.0%
McDonald's	53.3%	19.5%	4.6%	21.1%	100%	2.7%	28.1%	11.1%	10.4%
Sonic	2.0%	25.0%	0%	42.2%	70.3%	100%	73.4%	46.9%	6.3%
Subway	34.7%	22.4%	4.3%	22.7%	43.2%	4.3%	100%	15.5%	12.4%
Taco Bell	11.1%	23.3%	2.9%	33.0%	53.2%	8.6%	48.3%	100%	13.8%
Wendy's	13.2%	18.4%	2.2%	19.6%	42.0%	1.0%	32.4%	11.6%	100%

While the genre analysis seemed to point towards variation, the analysis of rival effects tells a slightly different story. Here, especially among the smaller firms, there are signs of mimicking to an astonishing degree. In fact, in this dataset, it's more likely to see Sonic advertise at the same time as Subway or McDonald's than it is to see Sonic advertise on its own. Taco Bell, too, is more likely to be seen alongside McDonald's than on its own. Such results point towards the small firms mimicking the large firms. Since firms like Sonic, Taco Bell, and Dairy Queen do not advertise a lot in the top 2% of telecast ratings, when they do, the data seem to indicate that they choose very common telecasts. For example, Sonic may choose to advertise during the Super Bowl simply because it can only afford one highly rated telecast, and it knows other Fast Food companies advertise during the Super Bowl as well. Sonic may, in fact, make its decision on which telecast to advertise during based on the behavior of the larger firms that are running highly rated ads on a more regular basis.

Most of the larger firms, on the other hand, still seem to avoid each other. Wendy's is a good example of a restaurant that still keeps to itself, even in the highly rated telecasts. There is slightly more overlap than might be expected with the smaller firms in the industry,

but again, that is likely an indication of mimicking behavior.

Dairy Queen is an important exception to the smaller firms tending to mimic rule, as it displays relatively low numbers across the board compared to its overall Ad %. However, Dairy Queen advertises among the least overall during highly rated telecasts, so its low percentages here could simply be a result of its habit to advertise elsewhere. In fact, Table 22 reveals that Dairy Queen spends most of its time advertising within the News genre, which is only the fourth top genre in the industry. Nevertheless, Dairy Queen could still be a outlier in my results, and I must rely on later findings to see if there is a similar pattern across other industries.

I have excluded a day part analysis from this section of my results because I do not expect enough variation to warrant an analysis. The top 2% of ratings are centered around prime time to such a degree that it did not make sense to include an analysis of day parts.

Please see the appendix for the analyses of the Candy and Wireless Telecommunications industries.

Overall, within the context of highly rated telecasts, all three industries show a sharp decrease in rival aversion. That is, firms within an industry become much more likely to advertise alongside each other during highly rated telecasts. While the variation in genre tends to increase, given the limited number of telecasts, overall rival aversion actually decreases. While the Quick Serve Restaurant and Candy industries show signs of mimicking, however, the Wireless Telecommunications industry does not. But even so, I have found a commonality among the three industries within the top 2% of telecasts by rating. In the following section, I will review some possible causes for the observed similarities and differences between the three industries. By reviewing how each industry acts both inside and outside of highly rated telecasts, I am able to propose some reasons why I may observe

the above results.

6 Conclusion

The results of this research should provide some insight on patterns in the television advertising industry. I try to find common factors that play into a firms' choice to advertise and then see if it abides by different rules during telecasts with high viewership. I conduct comparisons across industries to identify similarities and differences, and I try to make some statements of consistency across firms. The primary finding is that rival aversion decreases within the most highly rated telecasts for an industry. While there is, of course, a limited number of telecasts, the increase in overlap between firms advertising within the same program is quite large. While there are certainly mechanical factors affecting the results, the sizable difference in rival aversion points toward deliberate action on behalf of the firms. In all three industries, when the data were constricted to only the top 2% of telecasts, some firms became more likely to advertise alongside competitors than they were to advertise alone, which is such a huge difference from the earlier findings that the relationship is very likely more than just mechanical.

I focus the rest of my conclusion on proposing a reason why I may have found these results.

All three industries studied, by and large, focus their advertising outside of information effects. That is, very few of these firms advertise to alert consumers of the existence of a new product. While McDonald's may occasionally release a new sandwich and AT&T has new contractual offerings from time to time, by and large, these three industries do not advertise to give consumers more information about their products. There is no denying that informative advertisements exists in all three industries; in fact, the varying amount

at which informative ads take place within each industry could explain the variation in patterns established in the first sections of my results, but most of the time, the Quick Serve Restaurant, Candy, and Wireless Telecommunications industries likely engage in prestige or persuasive advertising. After all, most of the companies are very recognizable to the average person watching TV, so there would be no reason for Burger King or Verizon to spend so much money alerting customers to the existence of their brands. Again, new offerings certainly occur in all three industries to varying degrees, but generally, I studied three industries that engage in little informative advertising. More likely than not, then, all of these firms advertise either under prestige or persuasive effects for the vast majority of their ads. While it is not exactly clear which industries focus on which type of advertising, it is likely that Quick Serve Restaurants and Candy companies mainly focus on the same types of advertisements, at least within the context of highly rated telecasts. When the data are constricted to the top 2% of telecasts, for these two industries in particular, the behavior across industries becomes quite similar, which leads me to believe they're utilizing the same ad type. Overall, though, there is a definite trend towards overlapping during the same telecast in all three industries, which stands in contrast to my initial results. While the Wireless Telecommunications industry shows less signs of mimicking than the other two, the same convergence under highly rated telecasts does still occur.

I believe what drives the similar behavior during highly rated telecasts is the type of ads firms are running. Since ads during highly rated telecasts cost so much more than an average advertisement, it is very likely that firms advertise for prestige. Therefore, due to the similar nature of the ads, the similarity in behavior across firms and industries is intuitive. To add weight to the theory, my analysis of ratings showed a huge variation in the quadrant of ratings in which firms tended to place their ads. Since firms have varying marketing budgets and goals, it makes sense that only some would focus on highly rated

telecasts, where the vast majority of prestige ads likely run. However, when the data are constricted to only the very highest of ratings, it is perhaps expected to see a convergence of ad type. Whether or not my hypothesis of what specific type of advertising firms are engaging in is correct, it is very likely that ad type (prestige, informative, and persuasive) is what drives the variation and similarities between firms' advertising patterns.

Overall, then, it is a variation of ad type that causes firms and industries to differ in their advertising behavior. Even if demographic targets are similar, firms advertise for different reasons–some for prestige, some to inform, and others, perhaps, to block competitors out of the market. When the data are limited to a specific subset of highly rated telecasts, though, there is also a likely convergence of ad type. The datasets, of course, cannot prove which types of advertising firms are engaging in at a given time, but they can reveal trends. Given the differences between firms when all telecasts were analyzed and the noticeable convergence of behavior when only the top 2% of telecasts were studied, the most prudent explanation is a confluence of strategy in terms of ad type.

7 Appendices

7.1 Rival Effects Continued

Moving on to the Candy industry, I tried an identical analysis using similar data. I included the top 4 candy companies in terms of advertising space (making up roughly 90% of all Candy ads) and looked at their rival effects within the sports genres for the first 6 months of 2011, 2012, and 2013.

Table 5: Candy Industry Crossover Data (All genres)

Candy Companies	Ad %	Hershey	Mars	Nestle	Russell Stover
Hershey	72.0%	100%	19.5%	5.7%	0.2%
Mars	37.7%	37.3%	100%	7.7%	0.4%
Nestle	9.1%	44.8%	31.9%	100%	0%
Russell Stover	0.9%	14.4%	16.2%	0.4%	100%

Table 5 shows a similar trend to Table 4 in that it displays strong evidence toward rival aversion. No firm comes too close to its overall advertising rate when it crosses over with another firm. Mars and Nestle seem to be the two firms most likely to advertise together, as Mars overlaps with Nestle in 31.9% of its ads compared to its Ad % of 37.7%. Even so, it is quite clear that these companies do not follow similar strategies. Again, this aversion could be explained by something mechanical, such as different demographic targets, but it is a trend in the industry that lends itself to comparison with my later analyses.

From the analyses of the Quick Serve Restaurant and Candy industries, we see some important similarities and differences. The first important finding is that the industries look slightly different. Rival aversion is pretty clear in the Candy industry, but the same is not always true in the Fast Food industry. Individual companies also follow varying,

sometimes unexpected strategies within a single industry, highlighting that there are likely some mechanical factors at play in the advertising realm that cannot be gleaned from the data. The important step in this process, however, is to establish patterns to be revisited within the context of highly rated telecasts. In terms or crossovers, there are certainly some grounds for comparison.

In order to take a closer look, I finalize my research analyzing how how Wireless Telecommunications companies reacted to the presence of competitors. The following table shows data from the first 6 months of 2011, 2012, and 2013 for all telecasts during which at least one wireless company placed an ad. The firms included in Table 6 cover about 95% of the Wireless Telecommunications advertisements on TV.

Table 6: Wireless Telecommunications Industry Crossover Data (All genres)

Firms	Ad %	AT&T	Boost	Cons	Sprint	Straight	T-M	Verizon	Virgin
AT&T	45.1%	100%	1.2%	0.1%	8.1%	2.1%	12.9%	20.0%	2.4%
Boost Mobile	2.8%	20.4%	100%	0.1%	7.1%	1.1%	11.2%	14.1%	.9%
Consumer Cellular	2.3%	1.4%	0.1%	100%	0.5%	0.5%	0.4%	1.7%	0%
Sprint	13.8%	26.4%	1.4%	0.1%	100%	1.7%	12.0%	21.3%	1.9%
Straight Talk	5.2%	17.8%	0.6%	0.2%	4.6%	100%	7.6%	10.1%	1.2%
T-Mobile	18.9%	30.9%	1.6%	0.1%	8.8%	2.1%	100%	22.4%	2.9%
Verizon	31.2%	28.9%	1.2%	0.1%	9.4%	1.7%	13.5%	100%	2.0%
Virgin Mobile	4.0%	26.9%	0.6%	0%	6.5%	1.5%	13.6%	15.3%	100%

The interesting aspect of the Wireless industry is that the services provided are very close substitutes. While cellular network access isn't perfectly consistent, all firms sell products that connect cellular phones to a network. Other perks like reliable customer service and access to certain models of phone do play a role, but most of the competition in the

industry is driven by price. The iPhone, which was originally only available to AT&T customers, became available to Verizon customers in January 2011, and by mid April 2013, Sprint, Virgin Mobile, and T-Mobile carried it as well. Sinkinson argues that the increased availability of the iPhone actually lead to a decrease in profits among competitors (Sinkinson, 2014), which implies increased price competition for carriers that do not have access to the unique Apple phone as well. Overall, not much variation is strategy is expected because there isn't much market segmentation, making it difficult to find market niches.

Looking at data coming from over 250,000 individual telecasts, Table 6 reveals the same trend as Table 5. On a uniformly consistent basis, each firm in the industry avoids every other firm. That is, no firm even comes very close to its overall Ad % in its crossover percentages. Such a finding reveals that firms are following a consistent strategy. Perhaps driven by the fact that the product offering is quite similar, firms may be driven to avoid each other in advertising. Even the smallest firms in the industry, like Consumer Cellular Wireless, do not copy the advertising choices of their larger competitors. Consumer Cellular doesn't even come close to its 2.3% advertising rate in any of its crossover rates in the Consumer Cellular column. It seems that the marketing teams at each company wanted to overlap as little as possible with substitute products, so they all chose to find ad spots that differentiate themselves from competitors.

7.2 Genre continued

Going back to top genres by pure number of ads run, I analyzed top genres in the Candy industry following the same methodology from Table 7.

Table 9: Top Genres in the Candy Industry

TOP GENRES	Hershey	Mars	Nestle	Russell Stover
Genre 1	Reality (19.7%)	Reality (22.5%)	Music (21.1%)	Sports (55.6%)
Genre 2	Movies (18.5%)	Comedy (16.2%)	Comedy (20.8%)	Reality (12.9%)
Genre 3	Comedy (13.7%)	Movies (15.9%)	Reality (19.9%)	Documentary (9.5%)
Total Telecasts	350,187	168,511	28,363	3,699

Overall Candy Top Genres
Reality (20.5%)
Movies (17.5%)
Comedy (14.8%)
Music (11.6%)
Documentary (7.9%)
Sports (6.0%)
Total: 550,760

In the Candy industry, there is a bit more variation in firms' top genres, but even so, there is still a lot of consistency. For example, reality is in the top three for all four companies, and comedy is in three of the four. In terms of dispersion, Hershey and Mars are more similar, while Nestle follows a strategy of smoothing out its dispersion almost equally. Russell Stover is the most distinct, presumably trying to find its own niche in the market by advertising in different genres. Alternatively, it may simply be focusing on a different demographic segment.

Following my ratings-weighted analysis above, I wanted to determine if I would see more dispersion in the Candy industry as well. Given the pretty clear rival aversion from Table 5, I expected to see firms vary more dramatically in top genres when ratings play a role.

Table 10: Top Ratings-Weighted Genres in the Candy Industry

TOP GENRES	Hershey	Mars	Nestle	Russell Stover
Genre 1	Movies (17.7%)	Movies (20.3%)	Comedy (26.5%)	Sports (44.5%)
Genre 2	Reality (16.5%)	Comedy (18.4%)	Movies (21.8%)	Movies (16.7%)
Genre 3	Comedy (12.7%)	Reality (17.6)	Reality (19.8%)	Reality (15.8%)
Tot. Weighted Seconds	16,020.091	7,120.3565	1,088.4995	109.35146

Overall Candy Ratings-Weighted Top Genres
Movies (18.6%)
Reality (16.9%)
Comedy (15.0%)
Drama (7.9%)
News (6.4%)
Talk (5.7%)
Total: 24,338.299

Surprisingly, Table 10 actually shows less variation in top genres than Table 9. Despite the fact that firms do not often place ads during the same telecast, it seems that they target a generally uniform demographic. Such a result leads me to believe there are underlying dynamics affecting the Candy industry that are not visible within the data. For example, firms could be utilizing exclusive contracts with networks to ensure they can advertise in their top genres without overlapping competitors, or it may just be the simple fact that there is less variation because this analysis only looks at 4 firms.

Overall, Table 10 did not give the expected results, and it reveals a difference between the Quick Serve Restaurant and Candy industries. While there was more top genre variation after factoring in telecast ratings within the Fast Food industry, the same is not true in the Candy industry. I conducted an identical analysis in the Wireless industry to see if I could find a common factor.

Table 11: Top Genres in the Wireless Telecommunications Industry

TOP GENRES	AT&T	Boost Mobile	Consumer Cellular Wireless
Genre 1	Reality (22.5%)	Comedy (21.1%)	Documentary (28.3%)
Genre 2	Movies (15.7%)	Movies (17.9%)	News (17.0%)
Genre 3	Sports (12.9%)	Reality (17.3%)	Reality (11.4%)
Total Telecasts	160,422	8,253	6,421
TOP GENRES	Sprint	Straight Talk Wireless	T-Mobile
Genre 1	Sports (28.3%)	Reality (26.5%)	Reality (22.0%)
Genre 2	Reality (19.8%)	Movies (20.9%)	Movies (16.5%)
Genre 3	Movies (8.2%)	Documentary (10.6%)	Sports (14.9%)
Total Telecasts	44,597	15,665	60,835
TOP GENRES	Verizon	Virgin Mobile	
Genre 1	Sports (23.1%)	Reality (30.0%)	
Genre 2	Reality (17.1%)	Music (17.3%)	
Genre 3	Movies (12.0%)	Movies (14.6%)	
Total Telecasts	109,049	12,962	

Overall Wireless Top Genres
Reality (20.8%)
Sports (15.9%)
Movies (14.2%)
Comedy (9.8%)
Documentary (8.0%)
Drama (7.0%)
News (6.6%)
Music (6.6%)
Total: 438,203

It's unclear what warrants the differences among the firms' top genres, as the service provided in the industry is so similar. The four largest firms (AT&T, Verizon, T-Mobile, and Sprint) all have Reality, Movies, and Sports in their top genres with varying orders. The smaller companies, however, utilize those same genres as well as Documentary, News, and Music. Table 11 is interesting because it already displays quite a bit of variation between firms. Similar to the Candy industry analysis, there is evidence that the smaller firms in the industry are branching out to try and find a market niche in which to advertise. Alternatively, the variation from the smaller firms could simply be reflecting the fact that firms that advertise less are more likely to show more dispersion given the limited advertising space overall. Either way, it's clear that they're behaving differently.

Regardless, from the analysis of rival effects, I expect to find even more variation in firms' top genres after factoring in the effects of ratings.

Table 12: Top Ratings-Weighted Genres in the Wireless Telecommunications Industry

TOP GENRES	AT&T	Boost Mobile	Consumer Cellular Wireless
Genre 1	Reality (20.1%)	Comedy (17.9%)	News (38.8%)
Genre 2	Sports (19.5%)	Reality (15.5%)	Documentary (18.1%)
Genre 3	Drama (15.5%)	Movies (15.3%)	Game Show (16.7%)
Total Weighted Ad Seconds	22,251.504	892.57639	1,417.1151
TOP GENRES	Sprint	Straight Talk Wireless	T-Mobile
Genre 1	Sports (28.4%)	News (21.0%)	Reality (21.7%)
Genre 2	Reality (19.5%)	Drama (17.4%)	Drama (18.8%)
Genre 3	Drama (15.0%)	Reality (16.8%)	Sports (14.4%)
Total Weighted Ad Seconds	7,545.3152	2,088.8195	6,261.6133
TOP GENRES	Verizon	Virgin Mobile	
Genre 1	Drama (19.7%)	Reality (31.7%)	
Genre 2	Sports (18.6%)	Comedy (15.5%)	
Genre 3	Reality (17.8%)	Movies (13.1%)	
Total Weighted Ad Seconds	14,994.963	1,107.4313	

Overall Wireless Top Ratings-Weighted Genres
Reality (19.0%)
Sports (17.6%)
Drama (16.6%)
Comedy (10.8%)
Movies (9.8%)
News (8.8%)
Documentary (3.9%)
Total: 58,938.719

The top four firms in the industry again don't stray from the industry's overall top three

genres. And yet again, the smaller firms in the industry vary quite a bit more. Therefore, despite factoring in ratings, there is not too much of a change between how wireless companies place ads across the industry's top genres. The unique aspect of the Wireless industry as compared to the other two is that there was already a significant amount of variation between individual firms' top genres before factoring in ratings, so Table 12 does not refute the existence of rival aversion.

In terms of top advertisers, Table 12 shows that AT&T has the largest advertising expenditure by far, and Sprint actually appears to spend more money on advertising than T-Mobile despite placing only about 25% less ads overall. Again, these findings are helpful in determining which firms are most likely to advertise during highly rated telecasts.

7.3 Day Part Continued

Table 14 produced the results I expected after analyzing the Fast Food industry's rival effects and top genres, so I moved on to the Candy industry to see if it, too, generated the expected results.

Table 15: Top Day Parts in the Candy Industry

TOP DAY PARTS	Hershey	Mars	Nestle
Day Part 1	Daytime (22.9%)	Daytime (22.5%)	Daytime (24.1%)
Day Part 2	Prime (17.2%)	Prime (15.8%)	Early Morning (16.1%)
Day Part 3	Early News (12.0%)	Late Fringe (12.1%)	Prime (13.5%)
Total Telecasts	372,794	168,538	35,995
TOP DAY PARTS	Russell Stover		
Day Part 1	Daytime (18.4%)		
Day Part 2	Prime (16.3%)		
Day Part 3	Early Morning (13.6%)		
Total Telecasts	3,704		

Overall Candy Top Day Parts
Daytime (22.8%)
Prime (16.6%)
Early News (11.5%)
Early Fringe (11.4%)
Late Fringe (11.3%)
Early Morning (11.2%)
Total: 581,031

Here, the main source of variation comes from the third top day part, which is different for

each firm. Russell Stover varies the most from the other three, again adding weight to the argument that smaller firms vary the most from industry averages. Dispersion is roughly the same again, although Russell Stover appears to smooth out its day part choice a bit more than the other firms. Due to the clear rival aversion found in this industry, normally I'd expect to see more dispersion in the ratings-weighted analysis. However, including ratings weights in the genre analysis actually led to less variation in the Candy industry. Therefore, it's possible that the same will occur in Table 16.

Table 16: Top Ratings-Weighted Day Parts in the Candy Industry

TOP DAY PARTS	Hershey	Mars	Nestle
Day Part 1	Daytime (28.8%)	Prime (25.8%)	Daytime (22.1%)
Day Part 2	Prime (19.5%)	Daytime (17.2%)	Prime (19.3%)
Day Part 3	Early Fringe (11.1%)	Early Morning (11.8%)	Late Fringe (13.1%)
Total Weighted Ad Seconds	16,020.305	7,120.3565	1,088.5172
TOP DAY PARTS	Russell Stover		
Day Part 1	Prime (23.5%)		
Day Part 2	Daytime (20.6%)		
Day Part 3	Early Fringe (12.4%)		
Total Weighted Ad Seconds	109.35146		

Overall Candy Top Ratings-Weighted Day Parts
Daytime (25.1%)
Prime (21.3%)
Late Fringe (11.1%)
Early Fringe (10.2%)
Early News (10.0%)
Early Morning (9.6%)
Total: 24,338.53

Table 16 reveals slightly higher variation in top day parts. Daytime is no longer the top day part for each genre, so there is now slightly more variation between the top one and two day parts. Both tables include the same five day parts, but the dispersion ranges are bigger in table 16 than Table 15. In Table 16, the top day part range is 1% higher, the range for day part 2 is 2% higher, and the range for the third top genre is 0.4% higher. Given the small number of firms and day parts, these differences reveal slightly more variation.

These findings slightly contradict the genre analysis in the Candy industry, as there is more variation in top day parts when using ratings-weighted ad seconds. The industry is behaving contrary to expectations, but due to the smaller size in terms of number of firms, the unpredictability makes sense.

Yet again, I continue by looking at the Wireless industry.

Table 17: Top Day Parts in the Wireless Telecommunications Industry

TOP DAY PARTS	AT&T	Boost Mobile	Consumer Cellular Wireless
Day Part 1	Prime (21.0%)	Daytime (19.5%)	Overnight (32.6%)
Day Part 2	Daytime (20.0%)	Late Fringe (19.3%)	Early Morning (31.8%)
Day Part 3	Early Morning (11.1%)	Prime (18.1%)	Daytime (21.8%)
Total Telecasts	160,484	8,253	6,421
TOP DAY PARTS	Sprint	Straight Talk Wireless	T-Mobile
Day Part 1	Prime (25.0%)	Daytime (23.0%)	Prime (24.3%)
Day Part 2	Daytime (15.3%)	Prime (17.6%)	Daytime (16.8%)
Day Part 3	Late Fringe (12.1%)	Early Morning (12.8%)	Late Fringe (11.6%)
Total Telecasts	44,620	15,655	60,843
TOP DAY PARTS	Verizon	Virgin Mobile	
Day Part 1	Prime (24.4%)	Prime (21.3%)	
Day Part 2	Daytime (16.6%)	Daytime (18.4%)	
Day Part 3	Late Fringe (11.8%)	Late Fringe (14.7%)	
Total Telecasts	109,080	12,962	

Overall Wireless Day Parts
Prime (21.9%)
Daytime (18.6%)
Early Morning (11.7%)
Late Fringe (11.5%)
Early News (10.0%)
Early Fringe (9.6%)
Total: 438,328

In terms of analyzing variation, every firm aside from Consumer Cellular Wireless tends to advertise within the industry's top four overall day parts. There is slightly more variation

within the smaller firms, which tend to stray away from making prime their top day part, but again, this is to be expected and is likely reflective of a mechanical aspect of the market. Outside of Consumer Cellular, which clearly has a penchant for advertising overnight and in the early morning (which are presumably the cheapest times to run an ad), the dispersion across top day parts does not vary much firm to firm. Overall, though, there is not much of a pattern in terms of how companies seem to distribute their ads across day parts.

Akin to the analysis of the Wireless industry's top genres, there is already evidence of a decent amount of variation in firms' top day parts even before accounting for ratings. Therefore, it wouldn't be surprising to see little to no change in variation in Table 18.

Table 18: Top Ratings-Weighted Day Parts in the Wireless Telecommunications Industry

TOP DAY PARTS	AT&T	Boost Mobile	Consumer Cellular Wireless
Day Part 1	Prime (44.5%)	Prime (43.4%)	Overnight (37.9%)
Day Part 2	Daytime (12.9%)	Late Fringe (16.3%)	Daytime (29.7%)
Day Part 3	Late Fringe (9.4%)	Daytime (10.8%)	Early Morning (21.8%)
Tot. Weighted Seconds	22,251.782	892.57639	1,417.1151
TOP DAY PARTS	Sprint	Straight Talk Wireless	T-Mobile
Day Part 1	Prime (52.9%)	Prime (33.7%)	Prime (52.4%)
Day Part 2	Daytime (11.9%)	Early Morning (18.8%)	Late Fringe (9.8%)
Day Part 3	Late Fringe (8.0%)	Daytime (14.4%)	Daytime (8.4%)
Tot. Weighted Seconds	7,545.3152	2,088.8195	6,261.6133
TOP DAY PARTS	Verizon	Virgin Mobile	
Day Part 1	Prime (54.7%)	Prime (51.2%)	
Day Part 2	Daytime (8.4%)	Late Fringe (11.3%)	
Day Part 3	Late Fringe (7.3%)	Daytime (8.7%)	
Tot. Weighted Seconds	14,994.993	1,107.4313	

Overall Wireless Ratings-Weighted Day Parts
Prime (46.7%)
Daytime (11.8%)
Late Fringe (9.0%)
Early Fringe (7.5%)
Early News (6.9%)
Prime Access (6.0%)
Total: 58,938.967

Unsurprisingly, given the very high weight put on prime time advertisements, prime is the top day part for all but one wireless provider. Outside of that, though, there actually is

quite a bit of variation in Table 18 despite the frequency of the top three day parts. Early Morning, for example, appears only twice again, but that's actually a sign of firms avoiding each other here because Early Morning is no longer the third top day part overall. In fact, it isn't even in the top six. Additionally, Daytime, the industry's second top day part, appears much more frequently as an individual firm's day part 3. In other words, the top two genres are much different here firm by firm.

In terms of dispersion across top day parts, the smaller firms like Straight Talk, Consumer Cellular, and Boost place slightly more ads in their second top genres than the other firms, but the same is not true of Virgin Mobile, which is actually the second-smallest firm. Put simply, the dispersion across top day parts is pretty inconsistent.

7.4 Ratings Continued

Table 20: Ratings Effects in the Candy Industry

Candy Companies	Total Ads	Bottom Quartile	2nd Quartile	3rd Quartile	Top Quartile
Hershey	372,362	23.8%	24.5%	25.2%	26.5%
Mars	168,435	27.3%	25.2%	22.9%	24.6%
Nestle	35,924	29.8%	29.7%	25.0%	15.4%
Russell Stover	3,699	21.3%	37.9%	21.1%	19.7%

Again, there is little to no consistency in the Candy industry. The top firm, Hershey, generally increases its ad placement as ratings increase, but the second top firm, Mars, advertises the most in the lower rated telecasts. Nestle also decreases its ads as ratings increase, but it places far fewer ads in the top quartile than Mars. Russell Stover follows a unique strategy of focusing most of its energy in the second quartile. Since Nestle and Russell Stover both focus on the lower quartiles, Table 20 adds weight to my theory that small firms may not be able to afford advertising in the same space as the larger firms. Such a property of the market would also explain why the smaller firms (by advertising expenditure) tend to vary more from the general industry trends. Across all four firms in the Candy industry, though, Table 20 provides further proof of rival aversion.

Table 21: Ratings Effects in the Wireless Telecommunications Industry

Firms	Total Ads	Bottom Quartile	2nd Quartile	3rd Quartile	Top Quartile
AT&T	160,429	21.7%	24.5%	27.6%	26.2%
Boost Mobile	8,253	12.3%	32.8%	31.7%	23.2%
Consumer Cellular	6,421	26.0%	32.6%	28.5%	12.8%
Sprint	44,597	27.7%	24.6%	22.3%	25.4%
Straight Talk	15,263	7.4%	29.2%	33.9%	29.5%
T-Mobile	60,824	31.7%	24.8%	22.0%	21.4%
Verizon	109,050	31.8%	22.7%	20.1%	25.4%
Virgin Mobile	12,959	35.8%	28.0%	22.7%	13.5%

Perhaps unsurprisingly at this point, there is little to be gleaned from Table 21 except that firms seem to follow no general trend, indicating that they're all avoiding each other for one reason or another. By analyzing ratings effects, the most valuable piece of information gained is that cost per viewer is likely quite consistent across ratings quartiles.

7.5 Highly Rated Telecasts Continued

7.5.1 Candy

Table 24: Top, High Ratings Genres in the Candy Industry

TOP GENRES	Hershey	Mars	Nestle
Genre 1	Talk (25.3%)	News (43.0%)	Talk (85.7%)
Genre 2	News (22.2%)	Reality (10.8%)	Soap Opera (14.3%)
Genre 3	Soap Opera (19.5%)	Drama (10.6%)	
Total Telecasts	4,459	1,431	14

Overall Candy Top, High Ratings Genres
News (27.2%)
Talk (21.7%)
Soap Opera (15.1%)
Game Show (11.0%)
Variety (7.6%)
Total: 5,906

Russell Stover did not advertise enough in the top 2% of telecasts to warrant its inclusion in Table 24. Much akin to the analysis of the Quick Serve Restaurant industry, the observed variation in top genres is surprisingly high, especially as compared to the general and ratings-weighted analyses of top genres in the Candy industry. Without even reviewing the industry's overall top genres, it's clear there is a good amount of variation among the three firms. When the industry totals are taken into account, though, firms are much more likely to deviate from the averages than one would expect from my earlier results. Also similar to the Fast Food industry, the smaller firm is focusing most of its high ratings

advertising in one genre, which is indicative of its lower budget and may point towards exclusive contracts or sponsorship deals.

Moving on to the rival effects table, I would normally expect to see more evidence of rival aversion. However, the results from the Quick Serve Restaurant industry indicate that there may actually be signs of the opposite effect.

Table 25: Candy High Ratings Crossover Data

Firms	Ad %	Hershey	Mars	Nestle
Hershey	77.9%	100%	11.3%	0.2%
Mars	30.7%	28.5%	100%	0%
Nestle	0.3%	88.9%	11.1%	100%

Given the small number of firms in the industry, it is tough to compare these results to those of the Quick Serve Restaurant industry. However, there are several parallels, and it may even be fair to say that both industries show similar behavior within the context of highly rated telecasts. In the Quick Serve Restaurant industry, there were signs of mimicking by the smaller firms while the larger firms (by Ad %) continued to avoid each other. The exact same is true here. Nestle advertises alongside Hershey far more than it does on its own. On the other hand, it is important to note that the same is not true for Mars. Also akin to the Quick Serve Restaurant results, the bigger firms still seem to avoid each other. Even though the sample size is small in the Candy industry, I generally find the same trends as the Fast Food industry. The bigger firms tend to avoid overlapping, while the smaller firm shows a slight tendency to copy the behavior of one of its rivals.

Such similarity across industries is promising, and I hope to find similar trends in my analysis of Wireless Telecommunications providers.

7.5.2 Wireless Telecommunications

Table 26: Top, High Ratings Genres in the Wireless Telecommunications Industry

TOP GENRES	AT&T	Sprint	Straight Talk
Genre 1	Sports (31.5%)	Sports (33.1%)	Drama (55.9%)
Genre 2	Reality (29.3%)	Reality (33.0%)	News (17.1%)
Genre 3	Drama (22.5%)	Drama (21.1%)	Comedy (14.4%)
Total Telecasts	1,873	755	111
TOP GENRES	T-Mobile	Verizon	Virgin Mobile
Genre 1	Drama (31.6%)	Drama (43.1%)	Reality (54.8%)
Genre 2	Reality (28.1%)	Reality (24.0%)	Drama (32.3%)
Genre 3	Sports (21.6%)	Sports (17.8%)	Comedy (6.5%)
Total Telecasts	342	1,273	31

Overall Wireless Top, High Ratings Genres
Drama (29.9%)
Reality (28.0%)
Sports (25.9%)
Comedy (9.9%)
News (3.6%)
Total: 4,410

Consumer Cellular Wireless and Boost Mobile were excluded from this analysis due to a lack of observations. Table 24 does not change dramatically from the other two analyses of genre in the Wireless industry. Just as before, the top 4 advertisers all utilize the same top three genres, but in varying orders. Furthermore, the trend of smaller firms varying from the industry averages continues. There are more ads placed in each firm's top genre as

compared to the earlier analyses, but this is more likely than not due to the much smaller sample size.

The Wireless industry, as compared to the Quick Serve Restaurant and Candy industries, behaves differently in that it does not change its behavior much once ratings are incorporated in the analysis. As it's demonstrated throughout my research, the firms seem to make varied decisions and separate themselves even before ratings are taken into account. Therefore, I would expect the following rival effects analysis to greatly resemble my initial Wireless crossover table.

Table 27: Wireless Telecommunications High Ratings Crossover Data (All genres)

Firms	Ad %	AT&T	Sprint	Straight	T-M	Verizon	Virgin
AT&T	64.8%	100%	26.4%	4.3%	15.3%	47.7%	1.9%
Sprint	30.0%	57.0%	100%	4.8%	19.0%	52.2%	0.4%
Straight Talk	6.5%	43.0%	22.0%	100%	20.0%	55.0%	1.0%
T-Mobile	17.8%	55.5%	32.0%	7.4%	100%	59.2%	2.9%
Verizon	54.5%	56.7%	28.7%	6.6%	19.4%	100%	2.2%
Virgin Mobile	2.0%	63.3%	6.7%	3.3%	26.7%	60.0%	100%

Contrary to expectations, the Wireless industry also shows increased overlap in the high ratings environment. Just like in the Quick Serve Restaurant industry, the percentages across the board are much higher than I had thought they would be. Despite the expected aversion, it's actually more common to see almost every single one of AT&T's competitors run an ad alongside AT&T than it is to see them alone. The same is true for Verizon. With that being said, firms' overall advertising rates are higher as well, so it makes sense to see an overall increase in overlap.

Surprisingly, firms seem to have a particular interest in advertising alongside T-Mobile.

Aside from AT&T, in fact, each firm surpasses its Ad % in the T-Mobile row, indicating that they appear in a telecast with a T-Mobile ad more often than would be expected. Such a result is likely due to the fact that T-Mobile's top genres align perfectly with the industry's. Verizon's top genres also follow the same pattern, but since its distribution across those genres varies more from the industry averages than do T-Mobile's, the effect is less drastic.

Some firms show more of an increase in overlap than others, but overall, each company in the industry shows a positive change in how often it's advertising alongside its competitors. However, it seems to be the larger firms in the Wireless industry that show the most change. The two smaller firms, Straight Talk and Virgin Mobile, don't show as drastic an increase in overlap as do T-Mobile or even Verizon. This is in stark contrast to the Quick Serve Restaurant and Candy industries, but it aligns with the results from the earlier Wireless crossover table. Overall, it seems that while the Wireless industry shows less rival aversion in high ratings environments, the behavior is not a result of mimicking, but rather of the larger firms overlapping more, which is different from the other two industries.

7.6 Networks

There are 278 networks in the dataset, of which 79 have advertising data. This discrepancy exists because the data only include national advertisements, and many networks are regional (for example, CSN Chicago). In addition, premium subscription networks like HBO or STARZ charge an additional fee, but to not air outside advertisements. This is a separate model of television networks entirely.

Table 28: List of Networks

A&E	ABC	ABCFAM	AMC	APL	BBCA
BET	BIO	BRAVO	CBS	CHILL	CMT
CNBC	CNN	COM	COOKING	CW	DIY
DSC	E!	ESPN	ESPN2	ESPNC	ESPNDEP
ESPNWS	FNC	FOOD	FOX	FUSE	FX
G4	GAC	GALA	GOLF	H2	HALL
HGTV	HLN	HST	ID	LIFE	LMN
MILT	MSNBC	MTV	MTV2	MTV3	MUN2
NBC	NBCSN	NFLNET	NGC	OWN	OXGN
SPEED	SPKE	STYLE	SYFY	TBS	TEENNCK
TLC	TNT	TOON	TRAVEL	TVGN	TVLD
USA	VERSUS	VH1	VH1C	WE	WEATH
WGN	TRUTV				

7.7 Genres

The telecasts in the Rentrak dataset are classified among 26 genres:

- Action/Adventure
- Animation
- Comedy
- Cooking
- Documentary
- Drama
- Educational
- Foreign Language
- Game Show
- Home & Garden/Home Improvement
- Kids
- Movies
- Music
- News
- Paid Programming
- Politics/Public Affairs
- Reality

- Religious
- Science Fiction/Fantasy
- Soap Opera
- Sports
- Talk
- Thriller/Horror
- Travel
- Variety

7.8 Dayparts

Programs are also broken into 10 dayparts, based on the time a telecast airs. The dayparts are defined by The Television Bureau of Advertising (2014) as follows:

Early Morning:	5:00 AM to 9:00 AM
Daytime:	9:00 AM to 3:00 PM
Early Fringe:	3:00 PM to 5:00 PM
Early News:	5:00 PM to 7:00 PM
Prime Access:	7:00 PM to 8:00 PM (M-Sat)
Prime:	8:00 PM to 11:00 PM (M-Sat)
	7:00 PM to 11:00 PM (Sun)
Late News:	11:00 PM to 11:30 PM
Late Fringe:	11:30 PM to 2:00 AM
Overnight:	2:00 AM to 5:00 AM

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